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HINTS ON OUTFIT

FOR

TRAVELLERS IN TROPICAL COUNTRIES

BY

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CONTENTS.

PAGE

INTRODUCTORY.

VARYING CLIMATES 7
LOCAL MATERIALS 8
TRANSPORT AND CUSTOMS 8
PRICE 9
AGENCIES 9
PACKING 10
BE IN TIME 10
LIST OF FIRMS 10
OUR PLAN. 11

CHAPTER I.

CLOTHING.

GENERAL PRINCIPLES 12
UNDERCLOTHING 12
HEAD GEAR 14
FOOT GEAR 14
OUTER CLOTHING 15
NIGHT GARMENTS 17
BED CLOTHES 18

CHAPTER II.

PAGE

CAMP EQUIPMENT.

TENTS 19
PORTABLE BEDS 20
TABLES. 20
CHAIRS 21
BATH AND WASHSTAND 21
LAMPS 21

CHAPTER III.

CANTEENS AND COOKING REQUISITES.

COOKING REQUISITES 22
CANTEEN BASKET 23
FOOD BOX. 24
PROVISION BOXES 25

CHAPTER IV.

PROVISIONS.

CONCENTRATED FOODS 27
INVALID FOODS 28
BEVERAGES 28
ORDINARY PROVISIONS. 29
PRESERVES AND CONDIMENTS 30

CHAPTER V.

MOSQUITO PROTECTION.

MOSQUITO NETS. 31
MOSQUITO BOOTS 32
OTHER METHODS OF PROTECTION. 32

CHAPTER VI.

PAGE

BOXES AND PACKING.

Water-tight Boxes 34
Packing 35

CHAPTER VII.

STATIONERY AND WRITING MATERIALS . 38

CHAPTER VIII.

LITERATURE 40

CHAPTER IX.

MEDICINES AND MEDICAL REQUISITES.

Medicine Chests 41
Alcohol 44
Surgical Dressing Cases 44

CHAPTER X.

SANITARY APPLIANCES.

Filters 46
Sanitary Pail 46
Disinfectants 46

CHAPTER XI.

TOILET REQUISITES 48

CHAPTER XII.

PAGE

GUNS, RIFLES AND AMMUNITION . . . 50

CHAPTER XIII.

SUNDRIES 52

LIST OF FIRMS 53

INDEX 57

HINTS ON OUTFIT

FOR TRAVELLERS IN TROPICAL COUNTRIES.*

INTRODUCTORY.

To TRAVEL is an education; and if full use is to be made of the opportunities which present themselves to all who travel, whether for duty or pleasure, time and thought must be expended in making the preparations for the journey, so that health and comfort may be safeguarded and the success of the journey assured.

But we must not be content with setting before ourselves lofty ideals and vague theories; success depends in this as in most other concerns upon attention to details, small in themselves, but which combined make all the difference between health and illness, comfort and discomfort, usefulness and uselessness. In attempting, then, to answer some of the questions which present themselves to intending travellers, we hope to be able to offer hints which may be turned to good account.

VARYING CLIMATES.

It is obvious that climate must have an important bearing upon outfit; and as the meteorological and other conditions which go to make up climate vary, not only in different localities but in the same locality at different seasons, it is impossible to give general directions suitable for all cases, so that it is advisable to obtain information about local conditions from some one familiar with them. At the same time there are

* The Royal Geographical Society accepts no responsibility either for the inclusion or omission of names in these 'Hints'; they have been inserted by the editor solely for the convenience of travellers.

certain general principles which should guide the intending traveller in the selection of his equipment, which are dealt with in succeeding pages.

It should be noted that the Hints here given have been designed for the explorer rather than for the resident in tropical climates, so that no mention has been made as to the houses or furniture which would be needed by such. With this exception most of the advice would apply generally to all. It has not been thought necessary to refer to the clothing or other requisites which might especially be needed by ladies, not because we are unaware of the valuable work which has been done by ladies as explorers, but because it will be perfectly easy for any such to adapt the advice given to their own circumstances, though the author would be delighted to help with advice on special details if they would apply to him. All reference to Scientific Outfit is omitted, as this has already been given in 'Hints to Travellers.'

It will be noted that the Hints here given are designed especially for Tropical Travellers, no attempt being made to deal with the special questions of Arctic or Antarctic exploration.

Local Materials.

One of the first points to be ascertained by those going abroad is the facility with which local materials can be employed either for food or clothing. For instance, in India, China and Japan many articles of dress can be obtained which are more suitable and much cheaper than they would be in England. As regards food, this is a still more important matter, and we may take it as an axiom that the food supply of each country should be employed in every possible way before having recourse to preserved foods, which are valuable, and often necessary substitutes for fresh products, but should be regarded only as substitutes. The same principle would also apply to other articles of outfit, so that it is important in addition to the general advice given here to consult some one who is well acquainted with the local conditions of each country.

Transport and Customs.

The question of transport must always be taken into account in planning an outfit. If the journey includes any long distance in which the baggage must be carried on men's heads or animals' backs, it is clear

that the bulk of various articles is a more important question than their prime cost, and everything must be reduced to the smallest possible compass which is consonant with health, in order that the traveller may not be impeded. Where, on the other hand, railway or steamer accommodation is available, the weight of goods does not make the same difference.

To take an instance from the medical department: Epsom salts is an exceedingly useful drug to use, especially in the treatment of natives, but if a long land journey with carriers is involved, it would obviously be better to substitute, where possible, calomel or a strong pill.

It is well, however, in all circumstances to avoid all unnecessary articles on long journeys, and Mrs. Bishop's advice is a good one: "Never take anything you can possibly do without." Inquiry should also be made before starting as to Customs regulations, for in some cases great inconvenience has been caused through taking articles which are subject to a high duty, or failing to produce the bill of lading or the invoice of goods for the satisfaction of Customs officials.

Price.

The question of price is one which must influence to a considerable extent the selection of an outfit. We have only to say on this point, "See that you get the best value for money." It is often better to have a few reliable articles and pay a good price for them, than a host of other things which will not stand wear, or which may be positively harmful. For instance, there are a number of so-called air-tight cases in the market, and it is a great mistake to sacrifice cheapness to efficiency in this respect: it is better to spend a little extra money over a good box than to have your outfit spoilt through an indifferent one.

It is a strange thing that people should expect to pay prices for clothing for use abroad much less than they would pay if required at home, and yet they are expected to wear for a much longer time.

Agencies.

It is undoubtedly an advantage in going abroad to employ one of the agencies which exist especially for the packing and forwarding of goods. Some of these have been studying travellers' and missionaries' require-

ments for many years, and undertake to supply all that is needed in the matter of outfit. It is, however, in our opinion a mistake to make a rigid rule of obtaining everything under one roof. Some things may be obtained better at one place than at another, and this should be kept in view.

Packing.

Nothing is more likely to affect the reputation of an agency than the matter of packing. Care is the more necessary, as nothing can exceed the carelessness of some of the great steamboat companies' servants in dealing with travellers' goods. The goods supplied may be of the best, but if they arrive in fragments at the end of the journey this fact will afford poor consolation for the loss of necessary articles of outfit.

Further notes as to details of packing will be found in a later section.

Be in Time.

Few people, except those who have already been abroad, can realise the importance of making preparations in good time. Too often outfitting is left till the last moment. The traveller then suddenly awakens to the fact that there is no time to do things properly. Farewell visits, business concerns of many kinds, have to be crowded into the last days at home, and consequently nothing is satisfactorily done. We strongly advise our readers to get their things together in good time, and we are sure that if we can induce them to follow our advice in this respect we shall earn their sincere gratitude.

List of Firms.

A list of firms with their addresses is given. This is inserted for the convenience of travellers, and the firms are those of whom the author has some considerable experience either directly or indirectly. It must not be thought that the Royal Geographical Society incurs any responsibility for the insertion of names in this list nor the omission of others, but the author will be glad to have his attention drawn to firms who could produce as good, or better articles than those included in this list, so that in the possible issue of other editions corrections may be made, and

he hopes that the mention of these names may be of service to many in the practical arrangement of their outfit.

One further word must be said with reference to the plan which has been adopted in framing the following Hints.

Our Plan.

In a previous edition of 'Hints to Travellers,' various chapters were contributed by distinguished explorers, such as Mr. (now Sir) Harry Johnston, Mr. Whymper, and the late Mr. Joseph Thomson. It has been thought best in the present instance to arrange the material, which has been derived from a great variety of sources, in chapters devoted to the various divisions of outfit rather than under personal headings. Information has been collected in connection with the Travellers' Health Bureau, which is a department of Livingstone College; and the author, who has been appointed Instructor in Health and Outfit to the Royal Geographical Society, is willing to give special instruction on this subject, on conditions which may be ascertained on application to the Secretary of the Royal Geographical Society.

Special lectures on outfitting questions and occasional exhibitions are held under the auspices of Livingstone College, whilst all the latest hints on outfit in relation to health and travel are chronicled in the pages of 'Climate,' a quarterly Journal of Health and Travel, which can be obtained from the Editor, Livingstone College, Leyton, E.

Special thanks are due to Sir Harry Johnston, Mrs. Bishop and Mr. F. S. Arnot, for much valuable advice, and also to the large number of business firms who have placed at the author's disposal the results of their experience in providing for the needs of travellers for many years past.

CHAPTER I.

CLOTHING.

The great problem of "what to wear in the tropics," is a matter of the greatest importance and of no small difficulty. The simple answer which some would give, "wear wool," is undoubtedly a safe one, but does not altogether meet the case; and we propose first to state the general principles which should guide us in the choice of suitable clothing, and then to give some advice as to details.

General Principles.

It should be understood in the first place that in hot climates the skin acts much more freely than in cold regions, and that it is by this means largely that the temperature of the body is regulated. At the same time this excess of perspiration renders the body especially liable to chill, and this is a common source of danger in the tropics. It is imperative, therefore, that the clothing, especially that worn next the skin, should be absorbent. Another point upon which stress should be laid is that clothing is intended to keep the body warm, and that this is urgently needed even in warm climates, so that the idea that all clothing should be of the flimsiest possible description is unreasonable and often dangerous.

Underclothing.

Referring in the first place to woollen underclothing, a great variety may be obtained from the Jaeger Co., and a visit to one of the Jaeger depôts should always be made before definitely deciding on an outfit. There is, however, another alternative, and that is the Aertex cellular

clothing, which, though composed of cotton, is so porous that it permits the evaporation of the perspiration, and is most comfortable for wear next the skin. This has been thoroughly tested and is reliable.

We have mentioned these forms of underclothing first, as they have stood the severe test of time and experience; but there are two other materials to which we must refer, and commend to the careful attention of travellers. The "Wolsey" is a form of woollen underclothing which has been treated in such a way as to be practically unshrinkable, and the garments retain their softness and elasticity even after washing. The second material is known as Petanelle, and is a mixture of wool and peat fibre. The peat fibre being an antiseptic and a deodorant renders this form of clothing well adapted for cases where there is profuse perspiration, and as it has also been treated by the Wolsey process, it is not affected by repeated washing. It appears to have very remarkable properties of absorption, which is the quality so much needed in climates where perspiration is excessive. Mr. Joseph Tucker also makes a speciality of underclothing, and there are numerous other firms who might be dealt with; but seeing the importance of the subject we strongly recommend one of the materials mentioned above, and would warn our readers against any of the so-called mixtures of wool and cotton, or such a material as flannelette, which is entirely made of cotton.

As to the kind of garments to be worn, a shirt without a vest will probably be sufficient under ordinary circumstances if suitable outer clothing is worn, but vests should also be taken which could be worn when the weather is colder. Combination garments consisting of a shirt and pants are well worthy of a trial, but we advise in this as in other cases that these should be tested before going abroad in order to find out which seems to be most comfortable. For ordinary travelling it would be found most convenient to have shirts with collars, but they can be obtained separately either of woollen or cellular material if so desired. Woollen ties, which might be required in settled stations, can be obtained, if needed, in a variety of styles and colours. A cholera belt or other protection to the abdomen is advisable. A Jaeger woven belt, with a strap to go round the legs, is perhaps the best form, or a simple bandage of woollen material may be sufficient. Good belts are made of Petanelle, or, as suggested by Sir Harry Johnston, it may be sufficient to have the trousers high at the waist instead of any belt. Others wear what

is usually known as a "Kamarband" outside the trousers. Cellular drawers, which are loose and which do not come down to the knee, are strongly recommended. They are known as trunk drawers. Where there is much perspiration, the band of the trousers should be of Jaeger and not of linen, which is liable to cause chills.

Head Gear.

The protection of the head and spine ought to be carefully attended to. A good light pith helmet with special protection for the back of the neck is the best thing that can be employed, and the chief things which are to be desired are that it should be light in weight and colour; green lining being also an advantage.

These may often be obtained best and cheapest abroad, but some of the best pith helmets are finding their way to this country. Tucker's Indian helmet, known as skyla, made of pith with a detachable cover that can be washed, is a distinct advantage.

A soft hat may be worn early or late in the day when there is not much sun, and a double terai hat is recommended for this purpose. A sun umbrella should be taken, and this is preferable to merely taking a white cover on an ordinary umbrella, though for much marching where an ordinary umbrella would be required, it may save space to take one or two extra covers for the umbrella.

A spinal pad, though recommended by some, is hardly necessary where the suggestions already given are complied with, and, as Sir Harry Johnston says, it collects perspiration.

Foot Gear.

If the feet are to be kept in good condition, some trouble must be taken to obtain proper foot gear. Socks or stockings should be woollen, undyed, and knitted rather than woven. They should not be too thin or too thick. For those whose feet perspire very much Petanelle socks are well worthy of a trial, and any who have much marching to do should

take with them some Petanelle foot powder, to dust into the boots before starting on a journey. Jaeger socks, specially shaped to right and left feet, are very comfortable. Material for mending socks or stockings should also be included, and it has been suggested by some that a darning-weaver should be taken. We should advise our readers to make a special point of trying their boots before going abroad, as few things are worse than ill-fitting boots.

For heavy marching, strong boots are required, and it is very important to see that these are thoroughly comfortable before starting. A little money laid out on specially good boots would be well spent, as it is a serious thing to become footsore on a long march. It is most important to have a store of nails for boots; unfortunately, English-made boots seldom hold nails.

In dry weather, and where the walking is not too rough, shoes may be worn, especially if they are combined with putties or gaiters to protect the ankles from mosquitoes. The use of mosquito boots for the evening will be alluded to later on under the heading of mosquito protection. A pair of comfortable Jaeger slippers for use inside a mosquito net in the evening, or when ill, might be of comfort; and a supply of laces should be taken, besides, in some cases, leather for re-soleing boots and tools necessary for this purpose, but advice should be obtained on this point from the boot-maker who supplies the boots.

Outer Clothing.

In no department of outfitting has there been so great a change of opinion within the last few years as in that of the best material for tropical suits. White or khaki drill used to be regarded as the standard article, and had it not been for the experience of the South African war, would probably still have held the field. It was found however, by bitter experience, that the cotton material was soon soaked with perspiration on hot days, and was no protection from cold at nights, so that the War Office have altogether discarded drill in favour of serge; and it may be

regarded as established that, for ordinary wear in the tropics, suits of some woollen material are the right thing to wear. But there is something more required besides a good material, and that is that it should be well made up, and the exact cut of a coat may make all the difference between comfort and discomfort, nor can we altogether afford to ignore the question of appearance.

For well-made woollen clothing, I have confidence in the firm of Askew and Co., who are the recognised Jaeger tailors. Their catalogue contains some useful hints, and describes several special materials that may be found useful. Some of these have been tested in all parts of the world; and for riding breeches a strong material known as Indian whip-cord is recommended. There is also a large variety of serges and flannels from which suits can be made.

To advise a traveller to dress in woollen suits would have suggested a short time ago the idea of white cricketing flannels, and the fact that many go abroad with cheap suits of this kind is accountable for the prejudice which exists in many minds against wool. As a matter of fact, strong, stylish, comfortable, durable suits can be made of the materials already described, and they are infinitely more healthy than cotton goods.

Whilst ordinary woollen materials are adaptable for a great variety of conditions, many explorers will need a somewhat stronger material which may also offer some protection against rain. Burberry's weather-proof clothing may be commended. Their gabardine is a mixture of cotton and linen, and has been treated by a special process in the thread before being woven, which renders it resistant to rain, and yet without interfering with the porous nature of the cloth. This, when united with a woollen lining material, forms a combination which will protect the wearer against thorns. Gabardine is sometimes used in the tropics unlined, but we consider it better as a general rule to be lined. Further information on waterproof material may be obtained from Burberry's catalogue.

As regards the style of garments to be worn, modifications of what is usually known as the Norfolk jacket are probably best.

Whether trousers or some form of knee-breeches should be worn is a matter upon which there is a good deal of difference of opinion. Sir Harry Johnston strongly recommends the wearing of trousers with

canvas gaiters, as affording greater relief to the legs at the end of a march. For riding, breeches are almost a necessity, though the so-called Jhodpore trousers which are used in India, and which are cut at the knee like breeches, may be suitable even for this purpose.

Putties are much in favour for marching, especially in military circles. These may be of woollen material or of gabardine.

If braces are worn they should be of some woollen material, but most travellers prefer to wear a belt, to which may be attached a knife, and possibly a revolver and some ammunition, or even medicines; but in matters such as these the needs and the habits of the travellers vary very greatly, so that it is difficult to suggest any one arrangement which would be suitable for all.

A waterproof coat will be needed, and for this purpose Burberry's slip-on or some other variety of gabardine coat is what we recommend. A mackintosh is not a very wholesome garment anywhere, and is almost unbearable in a hot climate. It may be worth while to have a warm though light woollen overcoat, which might be used as a dressing-gown in case of illness. The so-called Mexican poncho is really a sort of blanket with a hole through it for the head, which can be used as a cape, and which might serve as an additional bed covering at night when required.

A new and most original overcoat for travellers has recently been devised by a medical man. It is made of woollen material which is said to be rainproof, and can be obtained from Haller and Ellis. It can also be adapted to form a bed, a stretcher, or a hammock.

Night Garments.

For night wear we recommend woollen pyjamas. They may be obtained from the Jaeger Co., with a special arrangement for fastening in front, which prevents them from gaping open and causing chill, as is too often the case.

Bed Clothes.

A sleeping bag is the best device for the protection of the traveller at night; and for the tropics this may be made of Jaeger sheeting. One or two Jaeger blankets, and a good Scotch plaid or woollen rug are also needed. A pair of cotton sheets may be taken, which may be useful in certain cases of illness, and especially if it should be required to give a cold pack, which is a valuable method of treatment in cases of fever.

CHAPTER II.

CAMP EQUIPMENT.

The provision of suitable camp furniture contributes in no small degree to the success of the expedition, but in this department it is specially important not to be too elaborate and so impede free movement.

Tents.

A really good tent is indispensable for anyone taking a long journey in an uncivilised country, and we strongly advise that the intending traveller should consult the firm of Benjamin Edgington, whose tents have accompanied almost every exploring expedition of recent date, or that of Piggott Brothers. It is only necessary to add that the tents should be of green rot-proof canvas, with a double roof for coolness and ventilation; and Sir Harry Johnston has suggested that a verandah may be made on the tent by a prolongation of the canvas roof at one end, which may be a great comfort and provide a good place for having meals. The size of the tent must naturally depend upon the number of persons who wish to use it, and it will be easy then to choose the most suitable size. A good ground sheet should be, of course, provided for the floor of the tent. A tent pole strap is a great convenience.

The late Mr. Joseph Thomson was accustomed to use what he calls a palkee hammock, which forms a bed and tent in one. This he took when he was going a short journey of two or three days, when he did not want to be cumbered with a large tent.

Portable Beds.

Next to the tent, and in some cases of even greater importance, is the choice of a suitable camp bedstead. After much careful consideration

of this matter we are inclined to recommend the wooden folding bedstead, manufactured, we understand, by an American firm, and which may be obtained either from Mr. Joseph Tucker or Messrs. Dickeson and Stewart. The design is the same as the folding iron bedstead which has been the favourite until recently of African travellers. This bedstead, as the framework is made of wood, is much lighter, and so simple that it can seldom get out of order. Another bedstead which finds a good deal of favour, is the compactum bedstead, which can be obtained from any tropical outfitter. It is not so simple as that mentioned before, or so easily put together. If the bulk of the equipment is not a great point a folding hair or cork mattress may be added, but this is not indispensable. A good pillow is of great convenience in illness, though some may decide not to take a pillow, but to improvise one either from the clothing which is taken off at night or from materials to be obtained locally, and this can be easily be arranged in the form of the bed described above. It will probably be well, however, to take a small pillow; the Petanelle company stuff pillows with material which is antiseptic, and which therefore is not so liable to become unwholesome from perspiration. Linen pillow-cases should be taken, but a couple of pillow-cases made of Turkey towelling might be useful in cases of fever where there was much perspiration, to put underneath the linen pillow cases. Pillows covered with an ordinary mackintosh material tend to excessive perspiration, which is undesirable. A valise or canvas bag such as is referred to under the chapter on Packing is a necessity to properly protect the bed clothes. A piece of extra canvas to repair the bed if necessary and fitted to it should be taken if possible. The question of mosquito fittings will be discussed later.

Tables.

Sir Harry Johnston advises the taking of a strong table with a wooden top and folding legs, but if it is desired to still further reduce the weight of the equipment, a very good folding table may be obtained with a Willesden canvas top which is remarkably firm and very portable.

Chairs.

Sir Harry Johnston lays great stress upon the taking of some good portable chairs, both for the traveller's own comfort, and also that he

may be able to offer a seat to any native who comes to his tent. He recommends a cane-bottom folding chair known as the Wellington, which can be obtained from Silver and Co. In addition we can confidently recommend a small folding chair of green Willesden canvas which goes with the table we have already referred to, and can be obtained from any of the leading outfitters. A good deck chair which can be used on board ship and easily carried afterwards is also very advantageous.

Bath and Washstand.

A combined folding bath and washstand of Willesden canvas is much to be recommended, but if rigid vessels are preferred, aluminium may be employed.

Lamps.

Good folding lamps can be obtained from most of the prominent outfitters, and both Silver and Tucker have good samples of these. Spring candle lamps are worse than useless, as in the great heat the candle is likely to melt. Care should be taken in taking candles to ascertain that they are suitable for tropical climates. Most of the chief candle firms prepare especially hard candles for this purpose.

CHAPTER III.

CANTEENS AND COOKING REQUISITES.

This department of the explorer's outfit might be included under the head of camp furniture, but owing to its great influence on health a special section is devoted to it. The usual plan which has been adopted in the past by travellers has been either to take a bucket canteen, including most of the articles required for culinary and table use, or else to have a canteen basket to hold not only articles for the table, but also food materials. Neither of these plans is in our opinion satisfactory, and we venture to suggest the following arrangements of the utensils which are needed either for preparing the food, preserving it, or for the table. The following loads will be needed, though in certain cases where the weight is not too great two of them might be combined to make the load of one carrier, if human porters are being employed; (1) cooking requisites; (2) canteen-basket; (3) food-box; (4) provision-boxes. These must now be described in detail.

1. Cooking Requisites.

Different travellers will require very different utensils for cooking, but what we feel to be most important is that cooking utensils should be kept by themselves, and not mixed up with the things which are needed for the table, for it is practically impossible to keep saucepans absolutely clean especially when they are being used on the march, and this often spoils the knives, forks, spoons, etc. which are often placed in them. Probably it will be found most convenient to pack the cooking apparatus in some basket, which may either be obtained abroad, or which might be adapted

to fit the required cooking requisites which may be taken from home. The following have been suggested as advised for use on the march:—

1. A strong kettle, preferably aluminium.
2. One smaller aluminium kettle.
3. Three aluminium saucepans (different sizes).
4. A field oven (two baking-pans, the top one larger than the bottom, and fitting over it).
5. A frying-pan.
6. One or two small baking-tins for bread or cakes.

In addition to these, but probably combined with this load, a cook's box may be taken, or this box might be carried by the cook, who probably would not carry a regular load. It should contain:—

1. Kitchen knives and forks.
2. Three wooden spoons, and a few pewter ones.
3. Meat-chopper and saw.
4. Tin-openers and corkscrews.
5. Roller and board.
6. Two or three basins.
7. Pepper, salt, and mustard-boxes and jars.
8. Small mincer.
9. A suet-scraper.

As an alternative to the field oven, one of Poore's camp stoves, which can be used for burning wood or other fuel, may be taken. This may be combined in the same load with a steam cooker. In a Gem cooker, three courses can be cooked at the same time, and for cooking tough fowls or vegetables such as yams, no more suitable cooking apparatus can be had. It is also possible to cook bread in the Gem cooker, though it will not have the brown crust of ordinary baked bread. An ordinary oil stove is not to be recommended if travellers are to be placed in districts where it is difficult to get paraffin. There is a Gem wickless oil stove which practically acts in the same way as a gas ring.

2. Canteen Basket.

It is intended that the canteen load should only contain articles for table use, all of which should be kept scrupulously clean, and that

no cooking utensils or food-materials of a perishable nature should be allowed in it. It is recommended that this should consist of a strong basket, and that it should contain the following articles :—

1. Six plates of all sizes.
   (*a*) Soup.
   (*b*) Dinner.
   (*c*) Breakfast.
2. Two dishes.
3. Two table-spoons, six knives, forks and spoons.
4. Six cups and saucers.
5. A tea-pot.
6. Pepper-pot, salt-box.
7. Sugar-box.
8. Biscuit-tin.
9. A Berkefeld filter.
10. A tray, containing a tablecloth, serviettes, tin-opener, corkscrew, matches.

N.B.—The plates, cups and dishes may be of aluminium or enamelled iron ware, and great care should be taken that the boxes containing food-materials should have tightly fitting lids, so as to prevent any possibility of coming open on the journey.

It may be well to have a separate box or small basket to contain a small spirit-kettle and saucepan with a small spirit-stove which can be strapped on to the canteen load, so that this can be used quickly before the other kitchen requisites can be unpacked.

3. Food Box.

In most cases canteens for travellers' receptacles have been arranged for containing cooked food and butter and other provisions which are in daily use, but it will be found a much more convenient and hygienic plan to set apart a special box to contain nothing but the various articles of food which are in daily use, and which may be known as the food-box. This is described in a very useful book for travellers published by Smith, Elder and Co., known as 'Health Abroad,' and we may give here the description which will be found on page 121 of that book of the food-box, only making a slight alteration of the amounts there given: "A food-

box should be carried, consisting of a wooden box (size 2 feet 6 inches by 1 foot by 1 foot), with a well-fitting lid with a padlock to fasten it. This box should be regarded as the travelling larder, and should contain several jars with fixed covers and a few screw-top, wide-mouthed bottles. In the jars might be kept American corned beef, when removed from the tin, or tongues, or even occasionally cooked meat or fowl, if found necessary to keep till next day. Condensed milk, after opening a tin, butter and jam should be kept in bottles, as also sardines when removed from the tin. In addition there should be included about 2 lb. each of flour and oatmeal, 1 lb. of peaflour for soup, also some cornflour, arrowroot, baking powder, dried vegetables, etc.; salt, pepper and condiments, Bovril, coffee, tea, cocoa and sugar. It has been suggested that aluminium utensils should be employed instead of the jars, and we think they are well worthy of a trial, as they are lighter, will not break, and do not act on the food. The greatest care should be taken as to the arrangement of this box. No food should be allowed to remain in it from day to day, and it need hardly be said that the box and every receptacle in it should be kept scrupulously clean. Slovenliness in this respect is unpardonable. There are quite sufficient risks to life in Central Africa without running the risk of poisoning by putrefying food."

It may be added that no other box need be opened on the march, the food-box being filled up in camp the previous evening.

The exact way in which these different loads may be arranged and the arrangement of the different articles in the canteen and food-box which each traveller may wish to make will probably vary. Advice may be obtained on all these points from the Travellers' Health Bureau, Livingstone College, Leyton, E., application being made in the first place by letter. The great principle, however, which is emphasised here is that the cooking utensils, canteen, and the food-box should each be kept absolutely separate, and not mixed up as is the case with almost every canteen now on the market.

4. Provision Boxes.

In addition to the travelling larder, which we have described above, a travelling store house will be needed, which should consist of ordinary packing cases provided with hinges and padlocks. It would also be well

for these boxes to have the lid fastened down by a few good screws which could be taken out when the box is being used. These provision boxes should be packed with such an assortment of preserved foods as the traveller is likely to require on the march, but the number of these which would be required, and the provisions which should be taken must depend on the length of the journey, the tastes of the individual and the possibility of getting provisions en route. In some cases it will be found best to obtain some of the supplies on the coast, and in travelling in East Africa, Mr. Joseph Thomson obtained most of his provisions at Zanzibar, but in most cases it will be well to take selected provisions from England, such as will be described in the following section.

CHAPTER IV.

PROVISIONS.

The proper use of the food supply of the country will probably go a long way towards ensuring the success of any expedition, and the less dependence is placed on preserved provisions the better is likely to be the result. Nevertheless, it is generally necessary to take some supply of provisions from home, and the quality is more important than the quantity.

Concentrated Foods.

Those who intend to travel with the least possible equipment may decide to rely mainly on the food which they may be able to obtain on the journey, supplemented only by a few concentrated foods which are of high nutritive value, and which can be packed in a very small compass. As instances of these, we may give the following: Plasmon, which is the albumen extracted from milk, and one of the most concentrated forms of nourishment known. As it consists of a white powder, it is not likely to decompose, and will be found of the greatest value both in health and disease. Frame Food Extract is the essence of wheat, and provides in a compact form some of the most important constituents for the nourishment of the body. Bovril appears to be the best form of meat extract, and there are various other forms of compact soups which are most useful, either to supplement or take the place of fresh provisions. The best are those which are known as Maggi's soups. Lazenby's soup squares are very good, and much thought of in South Africa; they are also cheap and portable. Marvis, which is a preparation of fish in the form of a white powder, is another concentrated food, not only highly nutritious but most palatable. Special emergency rations may be obtained from various sources. All of these foods would maintain life for considerable periods even if no other food could be obtained.

Invalid Foods.

It may appear strange to put prominently forward in the essentials of an explorer's equipment invalid foods, but whatever else may be omitted, some of these should be taken, for whilst a healthy man or woman may be able to live on very rough diet when in good health, it is in times of sickness, which must be provided for, that special comforts are needed; and even if the traveller is so fortunate as to maintain perfect health, a supply of foods for illness may be useful in emergency. Under this heading we advise a selection from the following: Benger's food, Allenbury's milk foods, Robinson's groats and prepared barley, Brown and Polson's cornflour and Plasmon arrowroot, in addition to some of the concentrated foods which have been already mentioned, and including a special form of Bovril for invalids. Ideal milk, which is the unsweetened brand of the Anglo-Swiss Milk Company, will also probably be taken as a general article of diet, and would be an important item of diet in time of illness. These foods should be kept together, perhaps in a special case, so that they may be readily available in case of necessity.

Beverages.

In most cases it would be advisable to take some tea, coffee and cocoa, and Burroughs Wellcome's tabloid tea is a compact and convenient form of taking tea. Any good make of cocoa should certainly be taken, as it is not only a beverage but a food in a concentrated form. In addition to ordinary forms of chocolate, Plasmon cocoa and Plasmon chocolate will be found to be highly nutritious foods, and should be included in the equipment of every traveller. We do not suppose that any travellers will burden themselves with any large quantities of sugar, but if there is a special liking for sweet beverages, saccharine will be found a good substitute.

A Sparklets bottle with a supply of charges may be found useful, especially in cases of illness, to make an aërated drink. We shall allude to the question of alcohol under the heading of medicine, as we consider it not only a useless encumbrance for a traveller or explorer, but posi-

tively harmful except in certain emergencies, when it might be useful as in medicine.

Lime-juice cordial is a most refreshing beverage, whilst the Eiffel Tower lemonade, which is obtained in a powdered form, is a convenient way for obtaining good still lemonade.

Ordinary Provisions.

Whilst it may be desirable on certain pioneering expeditions only to take concentrated foods such as those described above, there are obviously very many who will prefer to be provided with a reasonable quantity of stores such as they have been accustomed to use in ordinary life at home. These we may briefly summarise as follows:—

Meat.—We are strongly against the use of ordinary tinned meat such as is commonly employed in the form of stews, curries, etc., but some tins of good corned beef and Paysandu ox tongues keep well and are a pleasant change: these would be in addition to the meat rations, Bovril and soups which have already been referred to. Some good forms of potted meat complete the list of meat preparations which we should recommend.

Fish.—Marvis has been referred to above, and we desire strongly to warn our readers against the use of such tinned fish as salmon or lobster, which are in our opinion quite unsuitable for hot climates. Sardines, however, might be taken with advantage if they are liked.

Vegetables.—The difficulty of obtaining fresh vegetables in many parts of the world renders it important to take some dried vegetables. Turnips, carrots and onions are some of the best varieties. Hustler's marrowfat peas are an admirable substitute for fresh peas, and are the best of the kind which we have tasted.

Fruits.—Dried fruits such as apple-rings may be worth having, but we do not recommend either tinned fruit or vegetables. It ought to be possible in most parts of the tropics to get fresh fruit—bananas, if nothing else.

Biscuits.—Some plain unsweetened biscuits are useful in cases of illness, and cabin biscuits are often used instead of bread, but these are too bulky for ordinary use.

Cereals.—Wheat flour is almost a necessity, though it can be replaced to some extent if other grain is available. It is best taken in 2-lb. tins. If larger tins are taken part of it is very likely to go mouldy before it is used.

Brown and Polson's Paisley flour is a self-raising flour, and most valuable for mixing with ordinary flour in cooking.

Preserves and Condiments.

Jam and marmalade, which may be taken in tins, may be included if there is room for them, and Frame Food Jelly is a good substitute for either, possessing good nutrient qualities; but as some do not like it, it should be thoroughly tried before going abroad, and this would be wise in the case of most provisions. Butter does not keep well in the tropics, though it might be well to take some in tins if only for cooking purposes. Hugon's Atora beef-suet is the best form of grease for cooking purposes, and is excellent for suet puddings. This is most compact and more economical than ordinary suet or lard, and much more wholesome. A suet-grater should be taken, and this is included among the kitchen requisites. Some pepper, salt and mustard may be needed, and the latter may be useful in case of illness; it is also well to have some curry powder and a few bottles of Worcester sauce, which sometimes helps the appetite when the food is insipid.

The general question of packing will be considered later; but it is of great importance to know that in packing provisions for the journey each box should contain an assortment of provisions, so that only one box need be opened at a time. These boxes should be closed with a hinge, and might be screwed down until they are wanted. A simple lock might also be a convenience.

It is an excellent plan to put up complete food for the Europeans of the party for one day in separate packets, as done by the Duke of the Abruzzi and Mr. Freshfield. Much unpacking and waste are thereby avoided. There should be variety in detail in the daily provender.

CHAPTER V.

MOSQUITO PROTECTION.

The knowledge which has been recently gained as to the part played by mosquitoes not only in carrying malaria, but yellow fever and other serious diseases, renders it imperative that every traveller who values his own health and that of his expedition should take the most rigorous steps to avoid mosquito bites. It is beyond the scope of these Hints to give any special advice as to the choice of a camp, but great care should be taken when pitching the tent for the night that it should not be too near to stagnant water or to places where mosquitoes are likely to breed freely.

Mosquito Nets.

A mosquito net for use at night is the obvious precaution which every sensible traveller has adopted for many years past, not from any idea of the relations of mosquitoes to malaria, but from the point of view of personal convenience. The net may be of various patterns. The simplest consists of a piece of calico about the size of the bed or rather smaller, to which the mosquito netting is attached all round, so that the top of the mosquito net will be from 6 to 7 feet from the ground, the bottom being weighed with shot at intervals in order to allow it to rest absolutely on the ground. It is generally best, however, to tuck the sides in under the mattress or bedding. This mosquito net is suspended by tapes attached to the four corners of the calico roof which are easily fixed either to the inside of the tent or any other suitable place. If preferred, mosquito canopy can be provided, consisting of a framework over which the mosquito net is stretched. Mr. Joseph Tucker provides special corner pieces for the making of such a canopy to which bamboos can be fixed either in this country, or if available they may be fixed on the spot. White and Wright of Liverpool, have devised several convenient and

portable forms of mosquito canopies, the frames of which fold up almost like a fishing rod, and are very light and efficient. Silver and Co., supply special brass adaptable corner pieces which can be fitted to any size of bamboo or even to a wooden frame. Whichever device is selected, good strong mosquito netting must be taken, and the mesh should be not less than 10 holes to the inch, and of course it must be so arranged as definitely to exclude mosquitoes. Even the best mosquito net may be unavailing if it is not properly used, and this depends on the common-sense of the user. In any case it is advisable before getting into bed at night to search the inside of the mosquito net to see that no mosquitoes have entered, and this can be done best by getting someone to hold a candle or other light outside the net all round. The mosquitoes are usually attracted by the light, and then can easily be detected.

Whilst the desirability of using mosquito nets at night is usually conceded, it is often forgotten that one of the worst times for mosquitoes to bite is in the early evening, and it is doubtless due to this fact that the hour after sunset has been regarded as the most deadly time for contracting malaria. If the traveller is alone, he will probably find it possible to have his evening meal under a mosquito canopy, and Mrs. Bishop has devised a special plan for use at such times, the description of which we give in her own words. "It consists of an umbrella-shaped canopy of mosquito netting without any frame, and attached to this all round is a net curtain about 8 feet long, which falls straight to the ground. At the top of the canopy there is a loop of tape, and where the curtain joins it is a hoop of crinoline steel which keeps it extended. This can be removed and put away when not in use. This net also protects from other insects which are often a great nuisance." She adds: "Another plan which I have adopted to avoid the torments of vermin is to have a large sheet 6 feet by 8 feet of unbleached cotton, which is treated by being soaked in boiling linseed oil, then dried, then soaked again in the same and dried. This I spread on the ground under my bed and chair.

Mosquito Boots.

For those who cannot arrange to have their meals under a mosquito net, it is a good plan to have a pair of soft leather boots for use in the

evening, made somewhat in the shape of a shooting boot but with a sole suitable for a house shoe, and with very loose tops. The best thing of the kind we have seen, is made by natives in the Hausa country for riding boots, but Mr. G. Norris, of 55, 56, Bishopsgate Street, makes a boot something of this kind. Unless some device of this kind is adopted, the ankles are certain to be badly bitten by mosquitoes, which usually bite in this position during the evenings. Of course the neck and other exposed parts must be guarded, but there is less difficulty about this.

Other Methods of Protection.

In some cases where it is necessary to be about after dark or at other times when mosquitoes are especially troublesome, it may be worth while to have a kind of veil to protect the face. This can be worn practically as a puggaree round the helmet, and when needed can be brought down so as to cover the face, but is trying in very hot climates. Gauntlets for the hands are also sometimes worn. But whatever devices are adopted, no traveller in a malarious climate can afford to neglect any possible precaution which will secure him from the greatest obstacle of explorers in the tropics.

CHAPTER VI.

BOXES AND PACKING.

Water-tight Boxes.

It is of little use to spend money on an expensive outfit if care is not taken that it is properly packed; so that it is of the utmost importance that suitable boxes should be taken.

Silver's water-tight metal boxes, which have been used by almost every explorer, are the best; and they have recently been improved, so that the contents of the boxes may be preserved intact, even if the box should be submerged at the bottom of a river. This is more than could be said of any other boxes we know. The smaller cases are specially arranged so as to form a load for a carrier, and where they are intended to be carried on men's heads it is well to have wooden bottoms fixed on to the bottom of the case. In some instances, and especially with the larger cases, it is necessary to have an outside wooden case, but this is not usually necessary for the smaller ones, which are most likely to be used in an expedition.

For a traveller in countries where baggage is carried on the backs of animals different arrangements will have to be made, and it will probably be found that there are special methods of dealing with baggage suitable to each particular part, and it would be well for the traveller as far as possible to conform to the customs of the country. In some instances strong saddlebags of some waterproof material are employed, whilst Mrs. Bishop speaks of the use in China of boxes covered with some waterproof material, which can be strapped on to a horse or other baggage animal, or which can be so adapted as to be slung on each end of a bamboo for human carriers. As regards the general question of the packing arrangements of the equipment, we cannot do better than quote, with a few small alterations, the admirable advice which was given in the last edition of 'Hints on Outfit' on this subject.

Packing.

"On this subject some hints may be offered under four heads, viz. methodical arrangement, security, economy and the catalogue.

"1. *Methodical Arrangement.*—Articles likely to be in most frequent use should be packed together, care being taken not to bring articles likely to injure one another into close contact. Tins must be kept apart from anything breakable. Fragile articles (such as glass bottles) should be packed in small separate boxes or cases, so that, should they be broken, they may not leave a void which will cause all the contents of their case to jumble about. Chemicals and explosives should be kept separate from other things, and, before being packed, inquiry should be made as to regulations to which they will have to submit on shipboard, etc. If the goods have to undergo Customs examination, the traveller must be present himself, or he risks the goods being disarranged and carelessly repacked, and the eatables extensively tested by tasting.

"2. *Security* against (*a*) breakage, (*b*) damp (*c*) robbery should be studied whilst packing.

"*a.* To guard against breakage, packages should be of reasonable dimensions. For an inland traveller, 75 lbs. gross weight should be about the maximum of any single package. A horse or mule can take a (conveniently shaped) box of this weight on each side, and 50 to 60 lbs. between them on the top. Where goods are intended to be carried by porters, it is not recommended that any single package should weigh more than 56 lbs. Heavier packages will almost certainly have to submit to very rough treatment. Further security against breakage can be had by subdivision, that is to say, by packing boxes inside boxes, tins within tins, etc. Everything should be *tightly* packed, and all vacant spaces filled up. Oblong boxes travel best."

"A few large bags of the sort known in Tyrol as *Rucksacks*—made of Willesden canvas, of which various approved sizes can be got at Silver's—are most convenient for the carriage of small packages, and when not in use are so light that they can easily be stowed away. It is obviously desirable that some of the packages should be capable of being kept under padlocks. Several canvas bags and several dozen linen bags are very useful for packing.

"*b.* To guard against damp (on ship-board, in countries with heavy rains, passage of rivers, etc.), all perishable things should, where practicable, be enclosed in tin and soldered, *particular care being taken that everything is thoroughly dry before being soldered up.* It pays the traveller well to have his outer wooden cases made of the best deal, closely fitted, and varnished or double varnished to prevent absorption of moisture by the wood. Or it may be better to employ a special material for making light packing cases known as Venesta which appears to be much better than ordinary wood. It possesses the following advantages: (1) It is exceedingly strong. (2) It is much lighter in weight than any ordinary wood, and is a better protection from damp. It may be obtained from Venesta, Limited, 20 Eastcheap, E.C.

"*c.* Closely-fitted, well-made cases afford great trouble to thieves, and gaping packages, with partly-exposed contents, invite robbery. Boxes which are *screwed* down are more secure than nailed boxes, as thieves are frequently not provided with screw-drivers. Use *brass* screws, if possible, for cases which have to be frequently opened and re-opened; iron screws, if used, should be tallowed before insertion; they will then unscrew more easily. Articles of value should be kept out of sight as much as possible.

"3. *Economy.*—It is false economy for the traveller to buy any but the best articles for his outfit, or to carry useless things. Many articles may be put to double uses, and economy can be effected by selecting such materials as can be most widely applied. For example, articles to be used as presents may also be put to use on the journey. There should be no waste space in the packages. Every interstice can be filled up with articles which may be turned to account. For the finishing touches, tow, cotton-wool and paper, crumpled into balls the size of walnuts, may be advantageously employed, as all these materials can be used for a diversity of purposes. If the traveller does not himself superintend the packing of his goods, he must not expect foresight in these small but important particulars.

"4. *The Catalogue of outfit.*—As each package is finished, its contents should be carefully catalogued, and the package numbered distinctly on several sides, corresponding numbers to be entered in the catalogue. In the event of the contents of a box being varied and numerous, roughly classify them before entering. The traveller himself should carry the

catalogue on his person, and, where there are a large number of packages and articles, it will be found of advantage to form a classified catalogue showing the disposition of the articles, as well as a numerical one, showing the contents of each package."

It is worth while to have several duplicates of this catalogue, and where it is necessary, as in some cases, to despatch some of the baggage beforehand, it may be necessary to send an exact list of the contents of each box to the port of landing for the use of the Customs officer, as this may save a great deal of inconvenience.

CHAPTER VII.

STATIONERY AND WRITING MATERIALS.

THE requirement of travellers in the matter of stationery and writing materials will obviously depend largely upon the character of the expedition and the tastes of the individuals taking part in it. There are, however, certain details concerning which some advice may be helpful.

A File for letters and other papers is a very great convenience, and we strongly recommend some variety of the Ceres file, which forms at the same time the simplest possible file for the arrangement of papers and letters and a box for packing stationery. Probably the metal-box file (quarto size) with a canvas cover would be the most useful variety.

A Typewriter may be of use to those who intend to do much writing on their journey, and it is especially useful from the fact that several carbon copies can be taken off at the same time, thus enabling copies of all letters to be kept without the trouble of taking a letter book and copying press, and making it possible to send copies of the same letter or journal to several different people. This may prove to be an enormous advantage, and we would strongly urge that whatever system is adopted, the traveller should keep a copy of everything that he writes and several copies of the most important documents. He should keep with him at least two of each in separate boxes, so that if one is damaged or lost the other may be preserved. The Blickensderfer is, in my opinion, distinctly the traveller's typewriter, and it should be packed in one of the specially strong wooden cases which the company provide, and which can also carry supplies of typewriting and carbon papers. The mechanism of the typewriter should be understood, if possible, before starting, and spare parts taken as may be advised, so that in case of any small accidents it may be possible to remedy them without difficulty.

Manifold Books for use with carbon sheets might also be taken, and if

a typewriter is not taken, they may be employed both for writing journals and for letters.

Account Books, note books and alphabetical index books may be useful, or a small box of cards or the card file system may be of service for notes. Some advise a form of journal which can be closed with a lock and key.

Gem Paper Clips as provided by the Gem Supplies Co. are convenient.

A carefully selected fountain pen would be found useful. It would be well to take two in case of accident or loss.

Cochran's Ink is recommended for use with the Swan Pen, and the same firm provide ink pellets which are convenient, though the fluid ink is to be preferred.

Envelopes should be tough and not transparent, and for especially important despatches it is advisable to have some linen-lined envelopes. These should be kept carefully in one of the water-tight cases, as otherwise they will all stick together and become of very little use.

Letter Scales of a simple kind may be obtained which go into a very small compass.

Sundries.—Blotting paper, sealing-wax, gum, a few pencils, india-rubber, etc., should not be forgotten.

CHAPTER VIII.

LITERATURE.

Local maps and special geographical books, including 'Hints to Travellers,' must be taken as a matter of course, and on the subject of general literature we cannot do better than quote Sir Harry Johnston's words. He says:—

"As regards food for the mind, I cannot too strongly recommend all travellers to supply themselves with quantities of light literature. By 'light' I do not mean frivolous in character, but devoid of great material weight, so that it can be easily packed and readily transported. There are a great many standard books now published in cheap editions in paper covers, and these, together with a supply of good novels, sensational tales, old magazines, and reviews, should be taken. Although the traveller should endeavour to supply himself with books that are worth reading and re-reading, still, it is astonishing with what pleasure he will peruse the veriest rubbish in the wilderness, and really crave for anything that may serve to distract his mind at times from the savagery around him."

A Bible would naturally be taken, and perhaps a prayer-book; and religious books will suggest themselves to those who would value them.

The latest copy of Whitaker's Almanack gives information which may often be of great service, and a good telegraphic code, such as the "Via Eastern Telegraphic Social Code," should also be included.

CHAPTER IX.

MEDICINES AND MEDICAL REQUISITES.

Dr. W. H. Crosse has dealt at considerable length with the question of medicines which are suitable for use by those who have had little or no experience, in the second volume of the last edition of 'Hints to Travellers.' It may not, however, be out of place to make some suggestions as to the best form of medicine chests which can be obtained for use in travel, though it is difficult to give much detailed advice for expeditions which must differ from one another to a large extent both in the members of the party, the length of the journey and the possibilities of transport. These medicine chests we propose to group under the different firms who provide them.

Medicine Chests.

Burroughs, Wellcome and Co's. tabloid drugs have been tested in all parts of the world under varying conditions of heat and cold, and have proved to be uniformly satisfactory. Some may prefer merely to take a pocket-case, and a large variety of these are arranged by this firm. It should be made of cowhide. The most generally useful case which we know is that which is known as the teak-wood chest. This is so strongly made that it is hardly possible to damage it. It is not affected by heat or damp, or by insects, and it is very handy for moving about. A selection of drugs which may be suitable to be used with this case is given below, and if some extra supplies of quinine and other more commonly used drugs be taken separately, it will probably be found suitable for the ordinary requirements of a small expedition.

Chlorodyne.
"Hazeline."
"Tabloid" bismuth and soda.
,, soda salicylate gr. 5.
,, peptonic gr. 3.
,, cathartic compound.
,, antipyrin gr. 5.
, quinine hydrochlorate gr. 2.
,, aloin compound.
,, sulphonal gr. 5.
,, compound rhubarb powder.
,, Dover powder gr. 5.
,, Warburg tincture m. 30.
,, voice.
,, soda mint.
,, aromatic chalk with opium.
,, quinine bisulphate gr. 5.
,, powdered ipecacuanha gr. 5.
,, iron and arsenic compound.
,, potassium bromide gr. 5.

1 No. 111 case containing:
"Tabloid" compound tincture of camphor m. 15.
,, powdered opium gr. 1.
,, permanganate of potash gr. 1.
,, calomel gr. 1.
,, arsenious acid gr. $\frac{1}{50}$.

1 bottle X 25:
"Soloid" perchloride of mercury gr. 8·75.

1 No. 9 hypodermic case, containing:
1 hypodermic syringe with 2 needles.
2 tubes hypodermic "Tabloid" morphia sulphate gr. $\frac{1}{4}$.
atropine sulphate gr. $\frac{1}{150}$.
1 tube ,, ,, pilocarpine nitrate gr. $\frac{1}{6}$.
1 ,, ,, ,, apomorphine hydrochlor gr. $\frac{1}{15}$.
1 ,, ,, ,, atropine sulph. gr. $\frac{1}{100}$.
1 ,, ,, ,, quinine hydrobrom. gr. $\frac{1}{2}$.

1 Ophthalmic case fitted complete with :
- 2 camel hair pencils.
- Ophthalmic dropper.
- Glass pestle and mortar.
- 2 tubes ophthalmic "Tabloid" products :
  - Atropine sulphate gr. $\frac{1}{200}$.
  - Cocaine hydrochlor gr. $\frac{1}{200}$.
- 3 tubes cocaine hydrochlor gr. $\frac{1}{20}$.
- 1 tube physostigmine salicylate gr. $\frac{1}{600}$.
- 2 tubes corrosive sublimate gr. $\frac{1}{1000}$.
- 2 tubes boric acid gr. 6.

1 small tube "Hazeline" cream.
1 yard flax lint.
2 suture needles in a book.
1 reel suture silk.
½ yard adhesive plaster.
¼ yard oiled gauze.
1 caustic holder and point.
1 A.B.C. guide.
1 No. 7 catheter.
¼ yard court plaster.
1 pair scissors.
2 medicine droppers.
1 x 1-oz. glass syringe.
6 mustard-leaves.
1 lancet.
1 clinical thermometer.
1 dredger iodoform.

If there are several Europeans in the party who are likely to be separated, several of these chests should be taken. The Congo chest, which was the one used by Stanley and by most large expeditions, is probably the best to select if there is a doctor in the expedition, but for personal use it is rather heavy, and contains a larger selection of drugs than would be needed by most ordinary travellers. It can also be obtained in aluminium, which greatly diminishes its weight. Many other forms of chests are made, or special chests can be devised for special purposes.

Parke, Davis and Co. have recently introduced some very convenient forms of medicine chests and cases for travellers, fitted chiefly with compressed drugs. Their "Knockabout" pocket-case, containing twenty 2-dram bottles, measuring $8\frac{1}{2} \times 3 \times 2$ inches, is a most convenient form of pocket-case. The "Pioneer" medicine chest is made of teak wood, and contains not only a good supply of ordinary drugs, but a very well selected assortment of surgical requisites. The "Empire" is another medicine chest of similar character, but of a larger size.

Oppenheimer and Co. also have a selection of useful medicine chests, and their palatinoids have been tested with good results in tropical climates, and as in this case the drugs are not compressed, but enclosed in a small capsule, they are more suitable in many cases than compressed drugs.

Allen and Hanburys also provide medicine chests of compressed drugs, as do Howard Lloyd and Co. A selection of crude drugs for the treatment of natives is sometimes desirable.

Alcohol.

A bottle of brandy, half a dozen small bottles of champagne, and two bottles of port wine might be taken, as they are sometimes recommended for use in illness.

Surgical Dressing Cases.

Some pocket surgical instruments should be taken in case of emergencies, and Allen and Hanburys will put up a few useful instruments in a khaki roll, which is the most convenient form in which they can be taken; and the same firm will arrange a khaki case for surgical dressings which is exceedingly handy for dealing with minor surgical cases.

The Petanelle pocket ambulance case is one of the neatest and most compact arrangements of ordinary dressings that we have seen. Refills to use with the case when the first supply is exhausted should also be taken. This may be obtained from Pate, Burke and Co.

Down Brothers have also had experience in fitting out expeditions, and can give good advice. As surgical dressings it is most important to take some good antiseptic gauze and wool, and petanelle will be found an exceedingly useful form of dressing for any cases where there is much discharge. In addition to this, boracic lint, ordinary lint, absorbent wool, and some bandages should be taken.

Nursing Requisites.

A few syringes, including an enema syringe of best rubber, should be taken, as well as some form of bed pan, a waterproof sheet and a few other accessories for use in illness. Some of these might be improvised, and it is most important to have some knowledge as to their use before starting on a pioneering expedition. Two spare clinical thermometers should be added in addition to the one provided in the medicine chest.

CHAPTER X.

SANITARY APPLIANCES.

Filters.

The most convenient form of filter for travellers is the Berkefeld filter, and if one is required for an expedition nothing could be better than one of the large pump filters which were used during the South African war. If, however, it is only required for two or three people, the small traveller's pump filter supplied by the same firm will suffice. In any case, some extra filtering candles should be taken, and we advise that the filtering candle should be cleaned and boiled every night after use. Water containing gross impurities should be strained before being passed through the filter to prevent the risk of clogging which sometimes occurs. They are most simple to use, but travellers should take care to understand their working before starting on a journey.

The Pasteur Chamberland filters are also perfectly reliable, but not so convenient for a journey.

So-called pocket filters are worse than useless. A portable still is sold by the Gem Supplies Company, which acts very well, but is not so suitable for use whilst marching.

Sanitary Pail.

A sanitary pail with a seat is a great advantage, and it may be useful to serve as an earth closet when settled for any time at one station.

Disinfectants.

It is essential for everyone to take some good disinfectants. Dr. Crosse strongly recommends Chinosol, and it is put up in most convenient forms for the use of travellers.

Special papers may be obtained from the Chinosol Hygienic Company describing various packages of disinfectants which they have designed for travellers, and which have been approved by the Author.

In addition to the ordinary Chinosol equipment it is advisable to take one of their small boxwood cases, containing a few tablets, which can be carried easily in the pocket and used either for wounds or ordinary disinfection.

Izal is a most reliable disinfectant, and like Chinosol it is non-poisonous. It was employed very largely in the South African war, and can be used for ordinary disinfection, for wounds, or even internal use. The disinfecting powder is especially useful.

CHAPTER XI.

TOILET REQUISITES.

The arrangements for the toilet should be as simple as possible, but it is of the utmost importance that they should be adequate, as there is a tendency in the tropics to excessive perspiration, and to prickly heat and other affections of the skin which are closely connected with it, and at the same time there are many parasitic diseases which need to be guarded against.

This is best done by very scrupulous attention to cleanliness. For this purpose two good bath towels, not too thick or too thin, should be taken, and also two or three soft towels. A good soap may be obtained from many different firms. We recommend Izal toilet soap, which is not only a disinfectant but a good hard useful soap for general use, and the soaps of John Knight and Sons.

Two moderate sized sponges and two or three tooth-brushes will be needed, and we may add that careful attention to the teeth is of the utmost importance. The best ordinary tooth powder is in our opinion Calvert's carbolic tooth power, and of this half a dozen small tins should be taken.

Dressing bags or cases are generally quite useless in the tropics, and we recommend that a waterproof case should be taken, arranged similarly to the hanging toilet tidies which are provided on most steam ships. In this can be placed a sponge, tooth brush, tooth powder, as also a brush and comb. Aluminium combs are undoubtedly the best, for they are practically unbreakable and most cleanly. A soap box to fit the soap

taken is also a great convenience, and this might be of aluminium. Some may decide to take shaving materials, but we consider this unnecessary for travellers in uncivilised lands. Nail brushes, a good clothes brush, and a folding looking-glass will however be needed.

For use in fever a bottle of Eau de Cologne and some smelling salts are useful additions. A good supply of pocket handkerchiefs will of course be remembered.

CHAPTER XII.

GUNS, RIFLES, AND AMMUNITION.

There is so much difference of opinion as to the best kind of guns, rifles and ammunition which it is best for the explorer or traveller to take with him, that we propose merely to give the advice of Sir H. H. Johnston, and also an extract from 'Notes on Outfit for the Sudan,' which has recently been received at the office of the Royal Geographical Society.

"Sir Harry Johnston considers that a rifle, a shot gun and a revolver are all that would be required. He himself has used a ·450 single-barrelled rifle which he obtained by the advice of Mr. Selous from the Army and Navy Stores, and with that he has killed one of the biggest giraffes he has ever seen, as well as an elephant. Either a hard or soft nosed bullet might be used, but upon this point advice may be obtained on purchasing a rifle. In addition to this, he used a double-barrelled twelve bore gun for shot, and he suggested that this might be obtained from S. W. Silver and Co., but he was not personally in favour of the combined rifle and shot gun which this firm produce."

The Sudan Guide contains the following interesting advice as to arms and ammunition which is quoted almost verbatim with the exception of certain local notes which would not be of practical use elsewhere.

"The choice of rifle is purely a matter of taste: the following is a good selection: ·450 (Rigby), or ·400 (Jeffery), single or double; also a ·303, or Rigby Mauser, or Mannlicher (all equally good—·303 ammunition is easier to get); besides a common twelve bore shot-gun or 'Paradox.'

"For general purposes, a ·303 sporting carbine is the most convenient weapon for shooting small game. The practice of pursuing large and dangerous game with a rifle of small calibre is strongly to be deprecated.

"For big and dangerous game either a large bore rifle such as an 8 or 10, or else cordite rifle ·400 or ·450 bore (single or double, according to

taste, though double is of course preferable), is the most useful class of weapon.

"A black powder express rifle with the chamber bored out to receive cordite ammunition is unsafe, as the heat of the climate increases breach pressures naturally heavy.

"Locks of guns and rifles should be of simple pattern admitting of repair by a local armourer in case something goes wrong. A spare stock is often useful.

"Though there have been no instances of ·303 service ammunition getting strong, all other, even cordite cartridges, appear to be much more affected by the climate if kept long (two years or more) in the Sudan.

"For shot guns use black powder.

"Avoid nitro compounds, which are very irregular and easily affected by changes of temperature.

"Shot No. 5 is the best all-round size, though a few 4's are sometimes useful.

"Cases, if of brass, allow of reloading, a consideration in out stations. Therefore a reloading machine should be brought for rifles.

"Bullets nickel-covered 'solid' for thick-skinned game, soft nosed, or else 'Jeffrey,' for soft-skinned.

"Wax wads should be avoided; they are liable to melt and spoil the even combustion of the powder.

"Greased cloth wads should be used as a substitute.

"You are recommended to get all your ammunition from England, especially rifle ammunition: even though it takes a long time to reach you, it is worth it. Except on the outward journey and in the rainy season it is a mistake to oil a gun or rifle; oil is merely a trap for grit and dust, which if it gets into the barrel scores and damages it."

CHAPTER XIII.

SUNDRIES.

Doubtless there are many things not mentioned in the preceding chapters which would be needed by travellers going for a long journey in uncivilised parts, and we may mention under the above heading certain articles which occur to us as necessary, or at any rate useful for a journey. A roll of good tools such as are provided by Silver and Co., should most certainly be taken, and screws and nails, a hatchet, coal chisel, &c. should be included with this. A knife or knives, scissors, and some tubes of seccotine will be found useful for mending all kinds of breakages.

A housewife containing an assortment of needles and cotton as well as strong thread for mending, and with a good supply of buttons, especially linen ones which are not so likely to be damaged in the wash where due care cannot be relied upon.

Nail scissors and scissors for cutting the hair, or perhaps a hair clipper, string and cord, and a tape measure should not be forgotten.

It would have been possible to devote an entire section to the subject of saddlery and accoutrements for horses and other animals. The author is however of opinion that the varying conditions of different parts of the world make it impracticable to offer any general advice under this heading. He hopes, however, that each traveller will enquire beforehand as to what is required in the particular country to which he is going, so that he may know whether to take saddlery from England or whether he may rely on native articles.

No mention has been made of scientific instruments, as these have been dealt with in 'Hints to Travellers' in a detailed manner, and reference is made to the latest edition of that valuable work; but, in addition to other meteorological instruments, it may be well to have one or two ordinary thermometers.

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INDEX.

Absorbent wool, 45
Account books, 39
Aërated drink, 28
Agencies, 9
Air-tight cases, 9
Alcohol, 44
Allenbury's milk foods, 28
Almanack, 40
Aluminium, 23
Ammunition, 50
Antiseptic gauze and wool, 45
Apple rings, 29
Arrowroot, 28

Bandages, 45
Barley, 28
Bath and washstand, 21
Bedclothes, 18
Bedsteads, 19, 20
Belts, 13, 17
Benger's food, 28
Berkefeld filter, 46
Beverages, 28
Bibles, 40
Biscuits, 29
Blankets, 18
Blickensderfer typewriter, 38
Blotting paper, 39
Books, 38, 40
Boots, strong for marching, 15
Boracic lint, 45
Bovril, 27
— meat rations, 27
Boxes and packing, 34
— water-tight metal, 34
Braces, 17
Brown and Polson's cornflour, 28
— — flour, 30
Brushes, hair, 48
— nail, 48
— tooth, 48
Butter, 30

Camp equipment, 19
Candles, 21
Canteen basket with contents, 23
Canvas bags, Willesden, 35
Carbon papers, 38
Cellular shirts with collar, 13
Cereals, 30
Ceres File, 38
Chairs, 20, 21
Chinosol disinfectants, 47
Chocolate, 28
Cholera belt, 13
Climates, varying, 7
Clinical thermometers, 45
Clothing, 12
— general principles, 12
Cocoa, 28

Collars, 13, 14
Combination shirts and pants, 13
Combined bath and washstand, 21
Concentrated foods, 27
Condensed milk, 28
Condiments, 30
Cooking requisites, 22, 30
Corned beef, 25
Cornflour, 28
Curry powder, 30
Customs and transport, 8

Deck chair, 21
Disinfectants, 46
Dried vegetables, 29

Emergency rations, 27
Envelopes, 39
Eau de Cologne, 49

Filtering candles, 46
Filters, 46
Fish, 29
Folding hair or cork mattress, 20
Food box and contents, 24
Foods, 27
Foot gear, 14
Frame food extract, 27
— — jelly, 30
Fruits, 29

Gabardine suits, 16
— waterproof coat, 17
Gaiters, 15, 17
Gauntlets, 33
Gem cooker, 23
Gem Still, 23, 46
General principles of clothing, 12
Geographical books, 40
Good novels, 40
Grease for cooking, 30
Groats, 28
Ground sheet, 19
Gum, 39
Guns, rifles, and ammunition, 50

Head gear, 14
Helmet, 14
'Hints to Travellers,' 40
Horse accoutrements, 52
Hugon's Atora beef-suet, 30
Hustler's marrowfat peas, 29

Ideal milk, 28
Indiarubber, 39
Invalid foods, 28
Izal, 47, 48

Jaeger underclothing, 12
Jam and marmalade, 30

Kamarband, 14
Khaki case for surgical dressings, 44
Knives, 52

Lamps, 21
Lard, 30
Lazenby's soup squares, 27
Lemonade powder, 20
Letter scales, 39
Lime-juice cordial, 29
Lint, 45
List of firms, 10, 53

Literature, 40
Local materials, 8

Maggi's soups, 27
Manifold books, 38
Marmalade, 30
Marvis, 27
Mattresses, 20
Meat, 29
Medical requisites, 41
Medicines, 41
Medicine cases and chests, 41, 44
Mexican poncho, 17
Milk, condensed, 28
— foods, 28
Mosquito boots, 15, 32
— canopy, 32
— nets and netting, 31
Mustard, 30

Needles and cotton, 52
Night garments, 17
Novels, 40
Nursing requisites, 45

Oil stove, 23
Outer clothing, 15
Overcoat, 17

Packing, 10, 35
Palkee hammock, 19
Pants, 13, 14
Paysandu ox-tongue, 29
Peas, 29
Pencils, 39
Pepper, 30
Petanelle dressings, 45
— emergency outfit, 45
— foot powder, 15
Pillows, 20
Plasmon, 27, 28
— chocolate, 28
— cocoa, 28
Pocket medicine cases, 41, 44
— handkerchiefs, 49
Portable beds, 19
Potted meat, 29
Prayer-book, 40
Preserves and condiments, 30
Price, 9
Provisions, 27, 29
Provision boxes and contents, 25
Putties or gaiters, 15, 17
Pyjamas, 17

Religious books, 40
Reviews, 40
Riding breeches, 17
Rifles, 50
Robinson's groats and barley, 28
Roll of tools, 52
Rug, Scotch plaid or woollen, 18

Saddlery, 52
Salt, 30
Sanitary appliances, 46
— pail, 46
Sauce, Worcester, 30
Sardines, 29
Scissors, 52
Sealing wax, 39
Seccotine, 52
Sheets, 18

Shirts, 13, 14
Shoes, 15
Skyla, 14
Sleeping bags, 18
Slippers, 15
Smelling salts, 49
Soap, 18, 48
Socks, 14
Soup squares, 27
Stationery, 38
Stockings, 15
Sparklets bottle, 28
Standard works, 40
Suet, 30
Sundries, 52
Surgical cases, 44
Swan fountain pen, 39
Syringes, 45

Tables, 20
Tea tabloids, 28
Tents, green rot-proof canvas, 19
Terai hat, 14
Thermometers, 45, 52
Ties, 13
Toilet requisites, 48
Tools, 52
Towels, 48
Transport and customs, 8
Trunk drawers, 14
Typewriter, 38

Umbrellas, 14
Underclothing, 12

Varying climates, 7
Vegetables, 29
Veil to protect the face, 33
Venesta packing cases, 36
Vests, 13

Waterproof case, 48
— clothing, 16, 17
Wellington chair, 21
Wheat flour, 30
Whitaker's Almanack, 40
Wool, antiseptic, 45
Woollen suits, 16
— underclothing, 12
Worcester sauce, 30
Writing materials, 38

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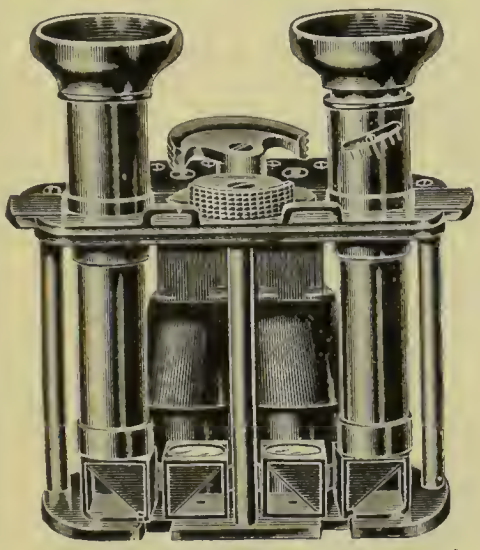

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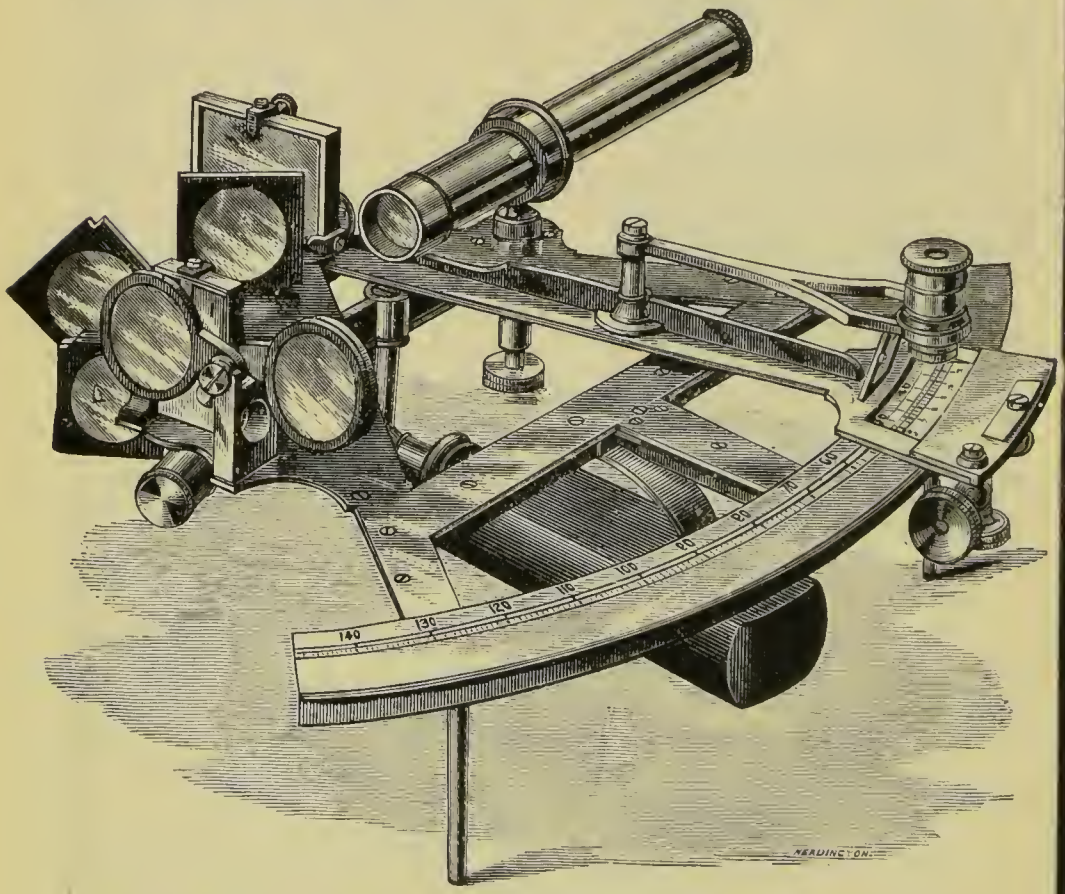

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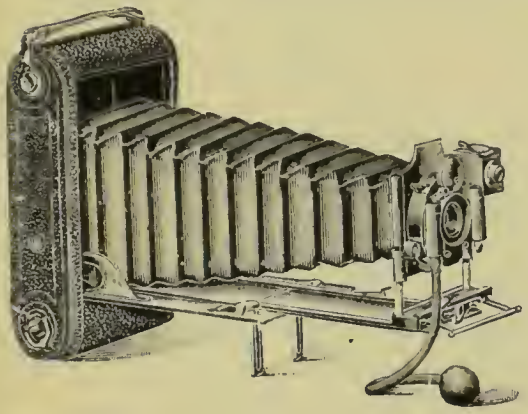

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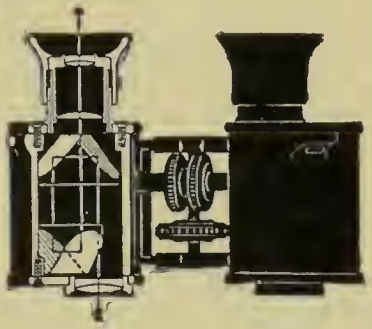

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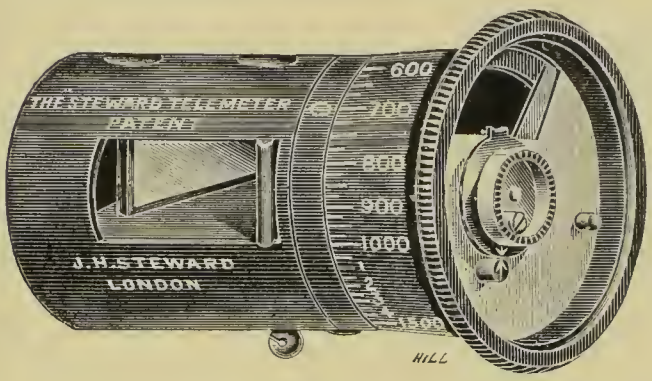

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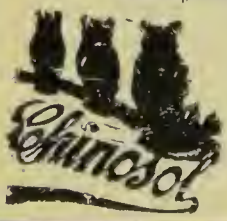

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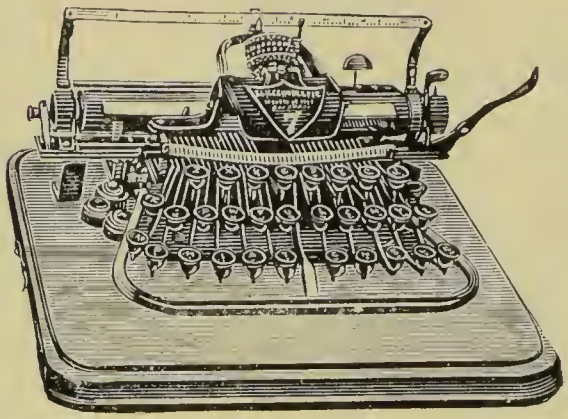

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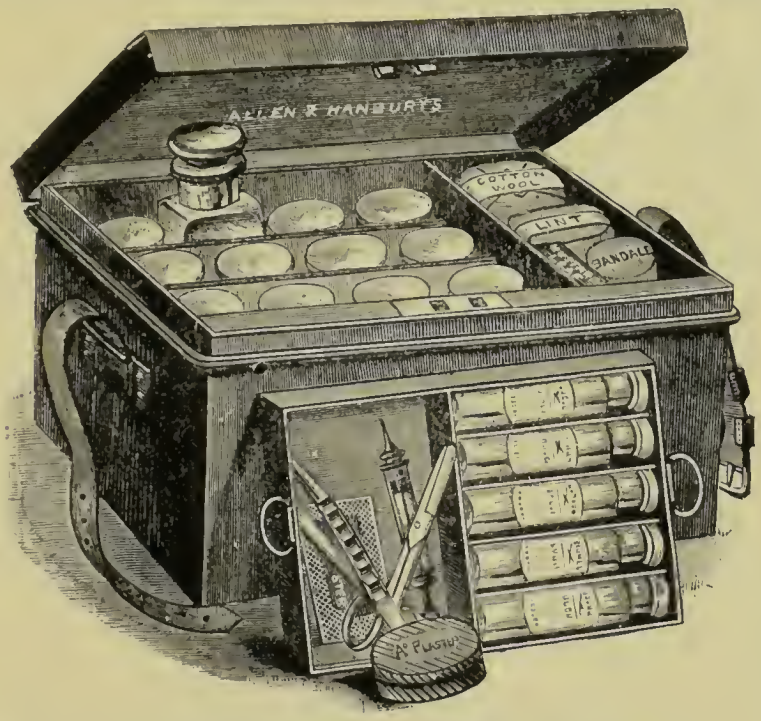

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